

## **REMARKS**

Applicant appreciates the thorough examination of the present application that is reflected in the lengthy and detailed Official Action. Applicant also appreciates the Examiner providing detailed analysis for the rejection or allowance of each of the claims, to provide a complete record and assist Applicant in formulating the present response. In response, many of the allowable claims have been rewritten in independent form to place these claims in condition for allowance. Many of the rejected claims also have been amended to further clarify patentability of the claims over the cited references. Finally, Applicant respectfully requests reconsideration of the rejection of some of the claims for the reasons that will be described in detail below. In order to provide a thorough analysis that is commensurate with the Examiner's detailed Official Action, the remarks below will proceed in the same order in which the rejections, objections and allowances were stated at Pages 2-17 of the Detailed Action.

Accordingly, Applicant respectfully requests allowance of all of the pending claims for the reasons that now will be described.

### **Applicant Requests A Signed Copy of the Information Disclosure Statement Filed November 6, 2001**

As a preliminary matter, upon review of the Official Action, Applicant notes that a signed copy of the Form PTO-1449 that accompanied Applicant's Information Disclosure Statement of November 6, 2001 that was filed concurrently with the present application, was not returned. PAIR indicates that this Information Disclosure Statement was received. For the convenience of the Examiner, a copy of Applicant's Information Disclosure Statement and the accompanying Form PTO-1449 is attached hereto, along with duplicate copies of cited references 1-10. Accordingly, Applicant respectfully requests the Examiner to return the signed copy of the Form PTO-1449 indicating that references 1-10 were considered.

### **Claim Rejections - 35 USC §112**

Claims 3 and 24-27 were rejected under 35 USC §112. In response, Claim 3 has been amended to depend from Claim 2, to provide antecedent basis for "the plurality of spaced apart fingers" in line 3. Claim 24 has been amended to eliminate the word "patterned" at line

9 thereof, to thereby provide proper antecedent basis in lines 9-11. Accordingly, Applicant requests withdrawal of the rejections under 35 USC §112.

### **Claim Rejections - 35 USC §102**

Claims 1 and 8-10 were rejected under 35 USC §102 as being anticipated by U.S. Patent 4,191,950 to Levin et al. In this regard, Claim 1 has been amended to recite that:

...the patterned flexible dielectric layer opposite the flexible lower electrode, the patterned flexible dielectric layer and the patterned flexible upper electrode being patterned to provide at least one opening that exposes the flexible lower electrode to the chemical, if present, and to establish a current flow path between the flexible lower electrode and the patterned flexible upper electrode through the chemical, if present, upon application of voltage between the flexible lower electrode and the patterned flexible upper electrode. (Emphasis added.)

The Official Action states at Paragraph 4 that the patterned flexible dielectric layer 77 of Levin et al. "is patterned because it has a notch in the upper left corner". However, this notch, which is illustrated in Figure 8 of Levin et al., is provided "so that the Velcro® patch 83 will be exposed", as noted at Column 5, lines 17-18 of Levin et al. The notch in the upper left corner does not "provide at least one opening that exposes the flexible lower electrode to the chemical, if present", as recited in amended Claim 1, so that Claim 1 is not anticipated by Levin et al. Nor would it be obvious to pattern the flexible dielectric layer and the patterned flexible upper electrode to provide at least one opening that exposes the flexible lower electrode to the chemical, if present, based on Levin et al., because Levin et al.'s pattern provides a mechanical attachment mechanism for the Velcro® patch 83. Accordingly, amended Claim 1 is patentable over Levin et al. Claims 8-10 are patentable at least per the patentability of Claim 1, from which they depend.

### **Claims 16, 18, 19, 21, 22 and 24-27 Are Patentable**

Claims 16, 18, 19, 21, 22 and 24-27 were rejected under 35 USC §102(b) as being anticipated by WO 90/12314 A1 to Urban et al. The rejection refers to Urban et al. Figures 13-15.

However, Applicant wishes to note that Claim 16 recites that the patterned dielectric layer and the patterned upper electrode are patterned:

...to establish a second current flow path between portions of the patterned upper electrode through the chemical, if present, upon application of voltage between the portions of the patterned upper electrode.

In this regard, the Official Action states that this recitation is "implied by Figures 13-15, which show that the lower electrode actually consists of two separate electrode sections and that the upper electrode also consists of two separate electrode sections". However, Applicant respectfully wishes to point out to the Examiner that Figure 13 is a side cross-sectional view of one of the electrode groupings of Figure 14 or 15. As such, the two "separate sections" of the patterned dielectric layer 4 on the lower electrode 5 in Figure 13 only appear to be separate sections because Figure 13 is a cross-sectional view. In reality, one continuous dielectric layer is provided, as shown in Figures 14 and 15. Similarly, the upper electrode 3, which appears as two separate sections in Figure 13, is actually a single circular electrode as shown in Figures 14 and 15. Specifically, as shown in Figures 14 and 15, the lower electrode 1 is a dot electrode, and the upper electrode 3 is actually a single circular electrode that surrounds the dot lower electrode 1. As such, Urban et al. does not appear to provide a current flow path between portions of the upper circular electrode 3 of Urban et al. through the chemical, because all portions of the upper electrode 3 appear to be at the same electrical potential.

Figures 14 and 15 of Urban et al. also show two independent sensors on a common substrate 5. However, in each of the sensors, the upper electrode 3 is a single circular electrode, notwithstanding the apparent illustration of two sections in the cross-sectional view of Figure 13. Moreover, it would appear unreasonable to assume that any current flow takes place between the two independent sensors that are shown in Figures 14 and 15, because they are spaced far apart from one another relative to the spacings of the electrodes within the sensor. Accordingly, Urban et al. Figures 13-15 do not appear to describe or suggest the establishment of a second current flow path between portions of the patterned electrode through the chemical, if present, upon application of voltage between the portions of the patterned upper electrode, as recited in Claim 16. For at least these reasons, Claim 16 is patentable over Urban et al. Claims 18, 19 and 21 are patentable at least per the patentability of Claim 16 from which they depend.

Claim 22 recites that:

...the patterned lower electrode is patterned to establish a third current flow path between portions of the patterned lower electrode through the chemical, if present, upon application of voltage between the portions of the flexible lower electrode.

Since the lower electrode **1** is a dot electrode, there does not appear to be a mechanism to provide a third current flow within the dot electrode **1**. Accordingly, Claim 22 is independently patentable.

Claim 24 is patentable over Urban et al. at least because Claim 24 recites:

...means for establishing a second current flow path between portions of the upper electrode through the chemical, if present, upon application of voltage between the portions of the upper electrode.

As was described above in connection with Claims 16, 18, 19, 21 and 22, Figures 13-15 of Urban et al. do not appear to provide for current flow between portions of the upper electrode **3** of any given sensor, because the upper electrode **3** of any given sensor is a continuous electrode. Moreover, there does not appear to be current flow between the sensors, because the sensors appear to be widely spaced apart, independent sensors that are provided on a common substrate.

In this regard, the Official Action states at Page 6:

Note Figures 10 and 12, which show upper electrodes outside the cavity, implying contemplation by Urban of having conductive solution also covering the cavities.

However, Applicant respectfully submits that Figure 12 illustrates a single upper electrode **3** in cross-section, as confirmed by Figure 9 of Urban et al., so that Figure 12 would not appear to imply current flow within the continuous upper electrode **3** or current flow between independent, spaced apart sensors. Accordingly, Claim 24 also is patentable over Urban et al. Claims 25 and 26 are patentable at least per the patentability of Claim 24 from which they depend. Moreover, Claim 27 also is independently patentable because there is no suggestion that there would be current flow between spaced apart lower electrodes **1** of independent sensors in Urban et al. Figures 14 and 15.

### **Claim 7 Is Patentable Under 35 USC §103**

Claim 7 was rejected under 35 USC §103(a) as being unpatentable over Levin et al. in view of U.S. Patent 4,760,383 to DiLorenzo. Applicant respectfully submits, however, that Claim 7 is patentable at least per the patentability of independent Claim 1 from which it depends.

**Allowable Subject Matter**

Applicant appreciates the Examiner's indication that Claims 28-45 are allowed. Applicant also appreciates the Examiner's indication that Claims 2, 4-6, 11-15, 17, 20 and 23 would be allowable if rewritten in independent form, and that Claim 3 would be allowable if rewritten to overcome the rejection under 35 USC §112 and rewritten in independent form. These claims have been placed in condition for allowance, as follows:

- ♦ Claim 2 has been rewritten in independent form.
- ♦ Claim 3 has been amended to depend from Claim 2.
- ♦ Claim 4 has been rewritten in independent form.
- ♦ Claim 5 has been rewritten in independent form.
- ♦ Claim 6 has been rewritten in independent form.
- ♦ Claims 11, 13, 14 and 15 have been rewritten in independent form, and Claim 12 depends from Claim 11. In this regard, the Official Action states in Paragraph (e) on Page 10 that "Claims 11, 12, 14, and 15 depend directly or indirectly from allowable Claim 10." However, Applicant wishes to bring to the Examiner's attention that Claim 10 actually was rejected at Page 3 of the Official Action. Patentability of Claim 10 was discussed above at Page 17. Claims 11, 12, 14 and 15 are allowable at least because Levin et al.'s lower electrode does not appear to establish a second current flow path between portions thereof, and because Urban et al.'s lower electrode is a single dot electrode which would not appear to provide current flow between portions thereof or between independent dot electrodes of independent sensors. Similarly, Claim 12 is patentable because Levin et al.'s upper electrode does not appear to establish a third current flow path between portions thereof, and Urban et al.'s upper electrode also does not appear to establish a third current flow between portions thereof or between upper electrodes of independent sensors. Claims 14 and 15 contain recitations of both the upper and lower electrodes, and are, therefore, patentable for the reasons described above in connection with Claims 11 and 12.
- ♦ Claim 17 has been rewritten in independent form.
- ♦ Claim 20 has been rewritten in independent form.
- ♦ Claim 23 has been rewritten in independent form.

♦ Applicant respectfully submits that many of Claims 29-36 are independently patentable. This analysis will not be presented in view of the indicated allowability of Claim 28.

♦ Claims 38-44 are patentable as depending from allowable Claim 37, as noted in Paragraph (k) at Page 14 of the Official Action. Applicant also wishes to note that many of these claims are independently patentable. This analysis will not be presented in view of the allowability of these claims.

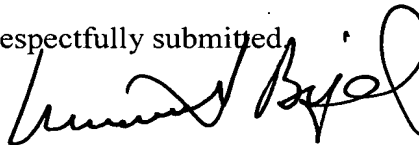
♦ Claim 45 is allowable.

♦ Claim 46 is allowable as depending from allowable Claim 45. Moreover, Applicant respectfully submits that Claim 46 is independently patentable. This analysis will not be presented in view of the indicated allowability of Claim 46.

### **Conclusion**

Applicant again wishes to thank the Examiner for the detailed Official Action, and the thorough and careful analysis that was provided by the Examiner in examining the claims. Applicant has now shown that all of the pending claims are patentable and, accordingly, requests allowance of all of pending Claims 1-46.

Respectfully submitted,



Mitchell S. Bigel  
Registration No. 29,614  
Attorney for Applicant

### **Customer Number 20792**

Myers Bigel Sibley & Sajovec, P.A.  
P.O. Box 37428  
Raleigh, NC 27627  
919-854-1400  
919-854-1401 (Fax)

### **CERTIFICATE OF MAILING (37 CFR 1.8)**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 16, 2004.



Susan E. Freedman

Date of Signature: August 16, 2004